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# Lending Club Case Study

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# Problem Statement

We are provided with loan dataset for risk assessment of loan applicants to identify risky borrowers and mitigate credit risk (loss) to the loan providing marketplace (client).

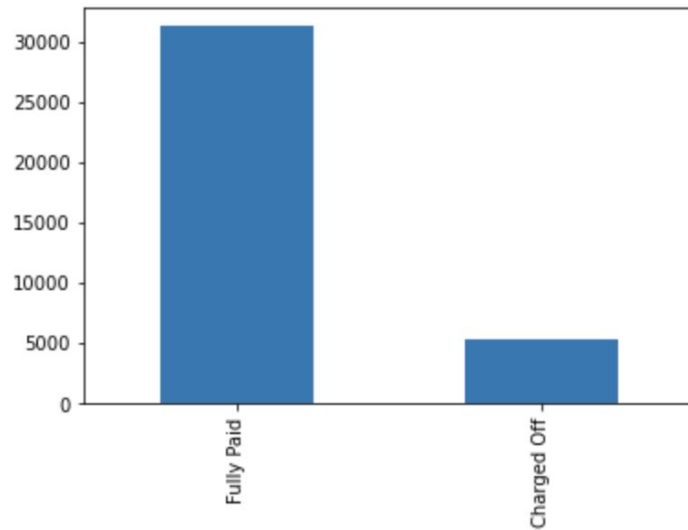
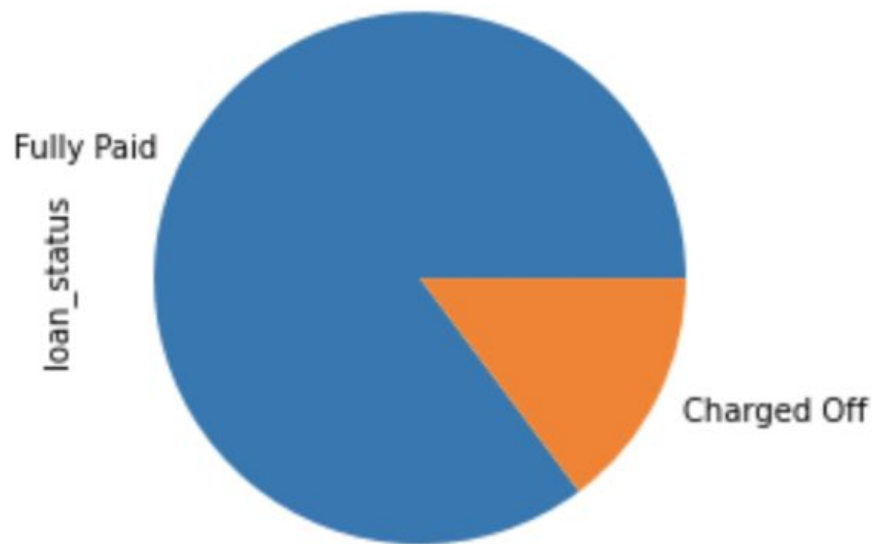
We will identify the driving factors which leads to loan default using exploratory data analysis.

# Analysis of Dataset

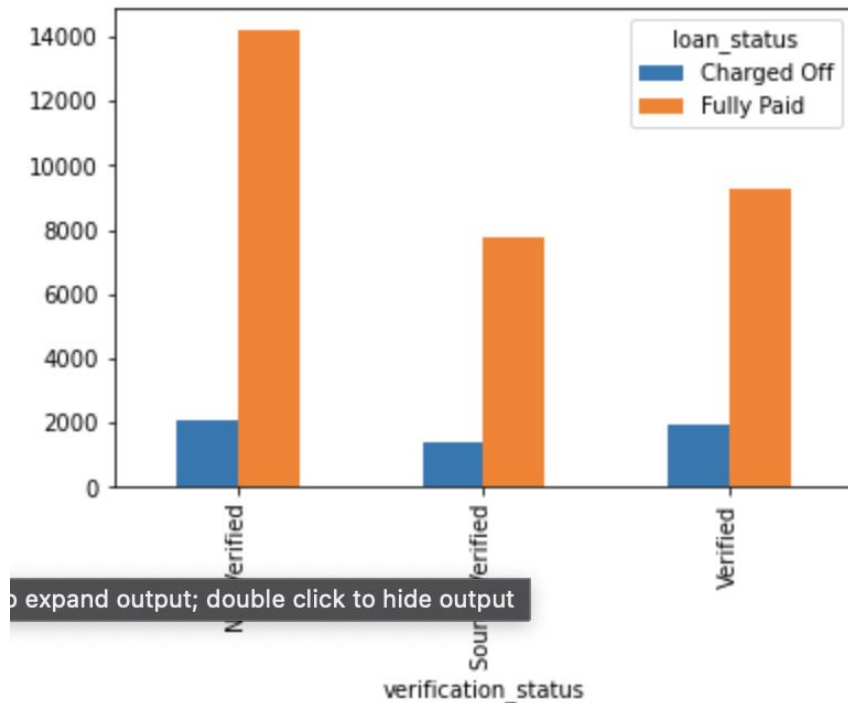
Initial analysis of dataset shows:

- Loan Status:
  - Fully Paid Loan: 32950
  - Charged Off: 5627
- Not much outlier variation in loan\_amt and funded\_amt, thus, no filtering required.
- Distribution of dti is in acceptable range.
- Annual income has uneven distribution above 95 percentile, so annual income is filtered.

# Loan Status



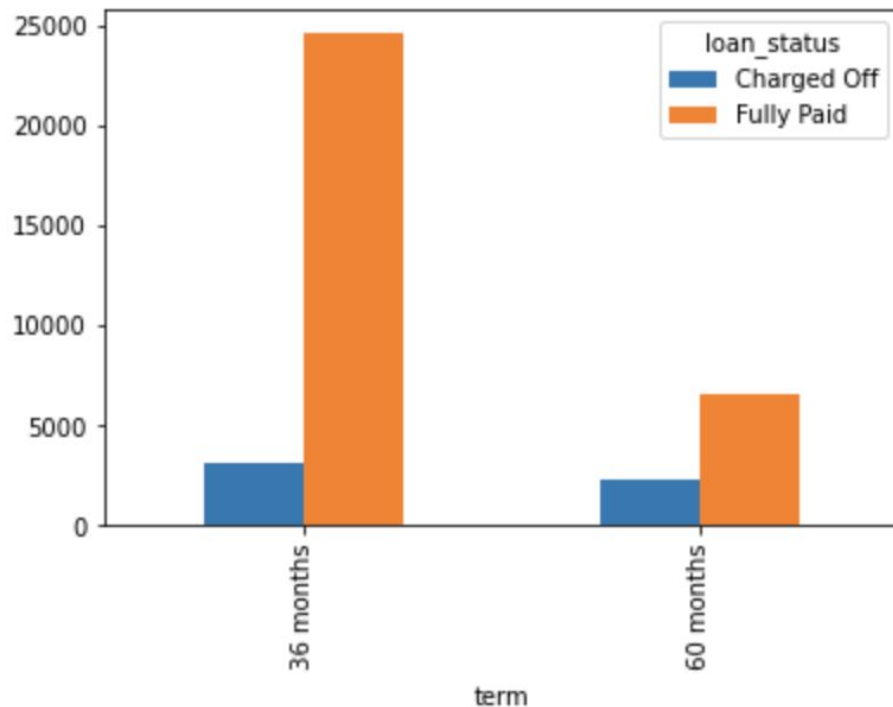
# Verification Status



Conclusion:

Charged-off for non-verified is most and for source verified is least.

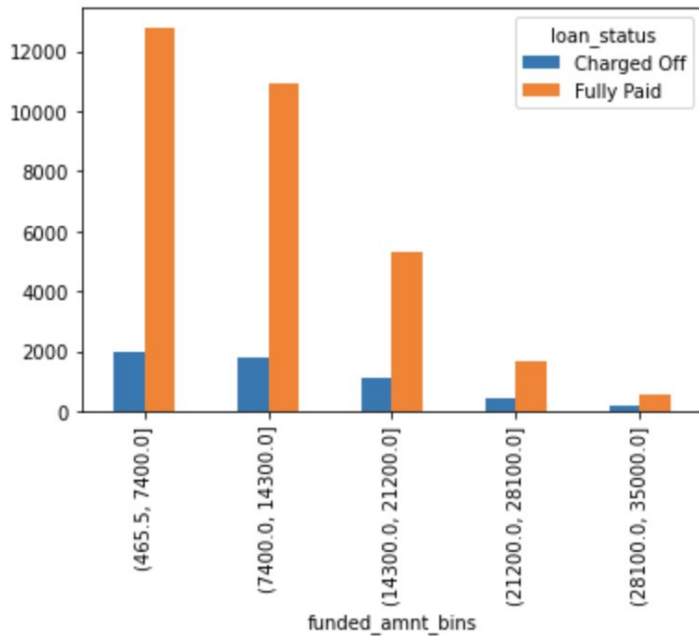
# Loan Term



Conclusion:

Default loan is more for borrowers of short term (36 months).

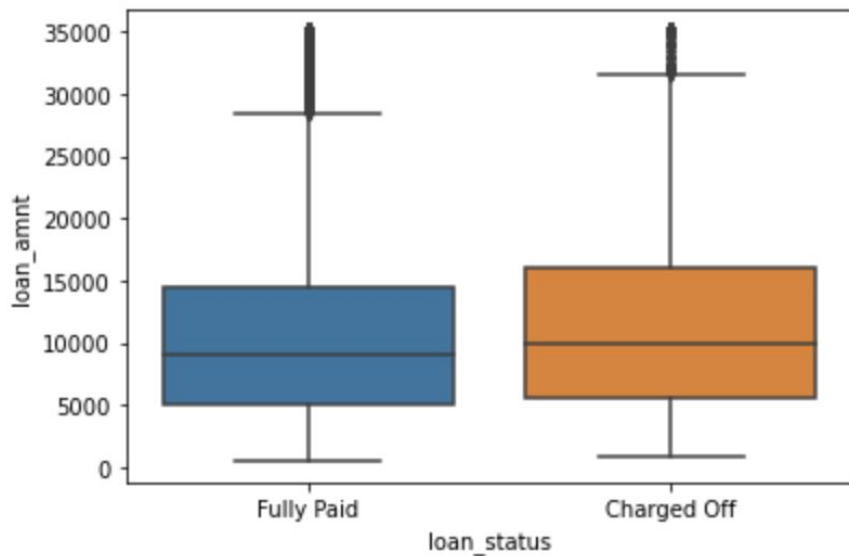
# Funded Amount



Conclusion:

More charged-off for lower funded amount of loan.

# Loan Amount

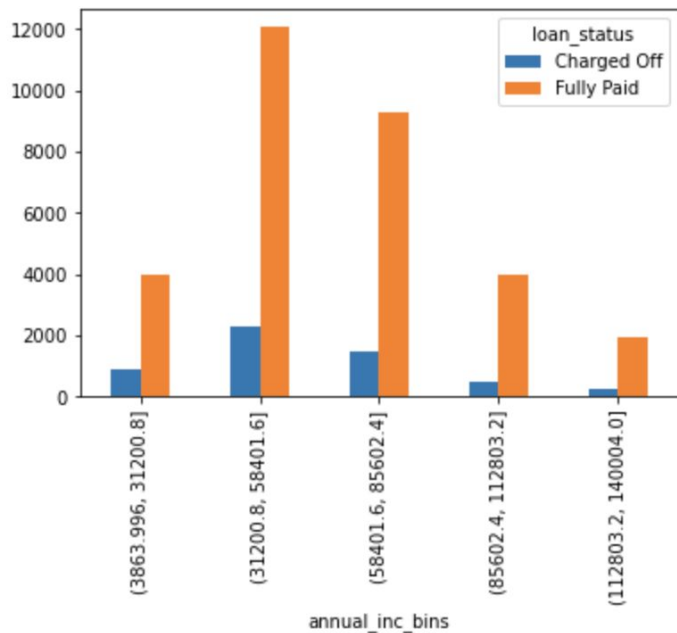


## Conclusion:

- Charged-off is less for higher loan amount.
- Charged-off is more for the loan amount range of 5000-15500.



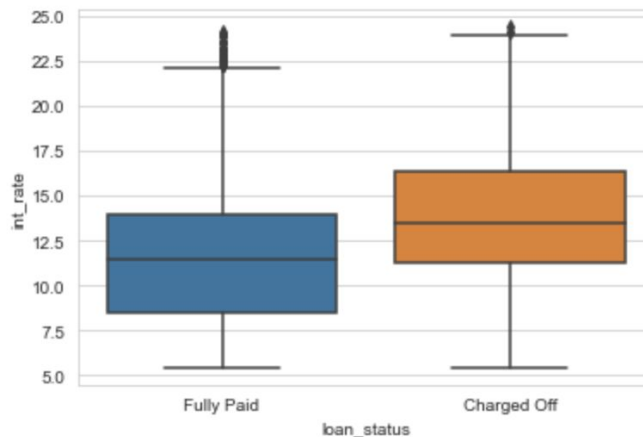
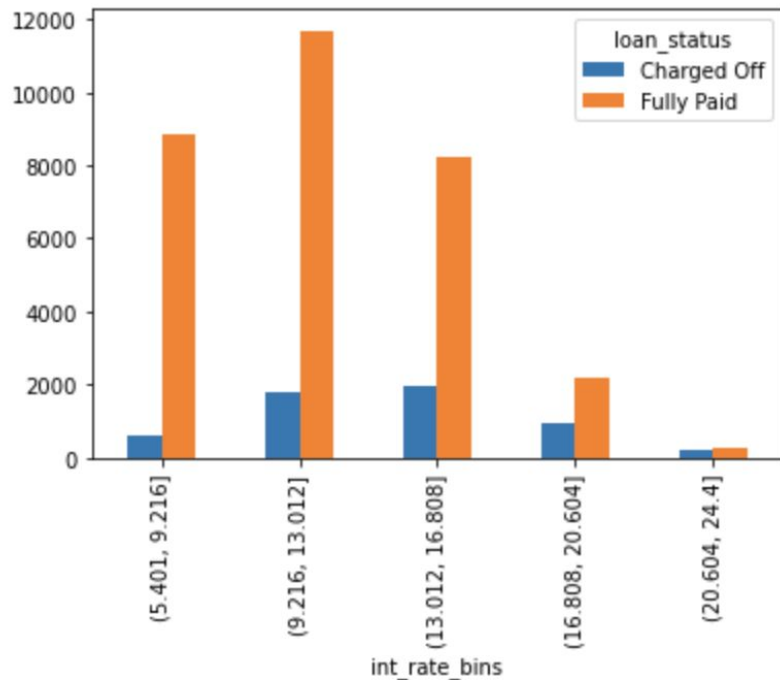
# Annual Income



Conclusion:

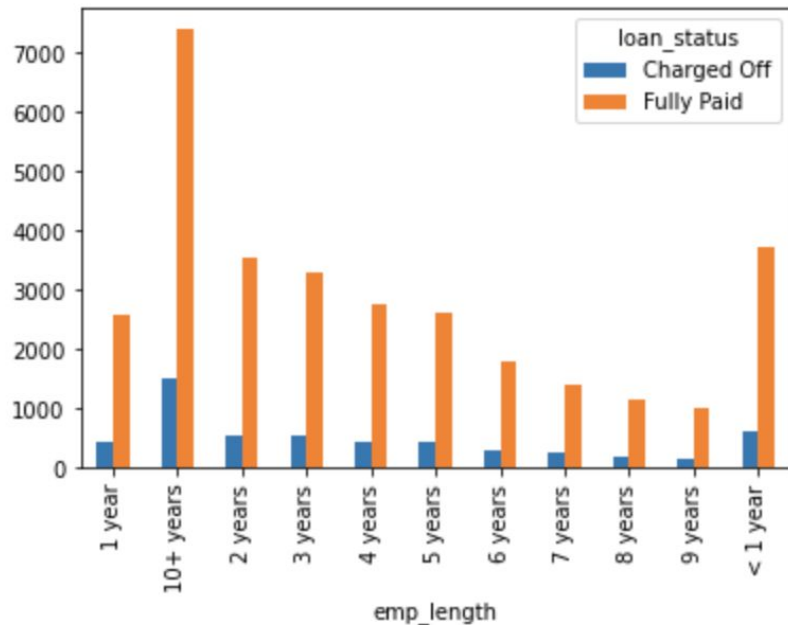
Defaulters are more when the annual income is in the range of 30000 - 58000.

# Interest Rates



If interest rate is 12-16%, then the loans are likely to default.

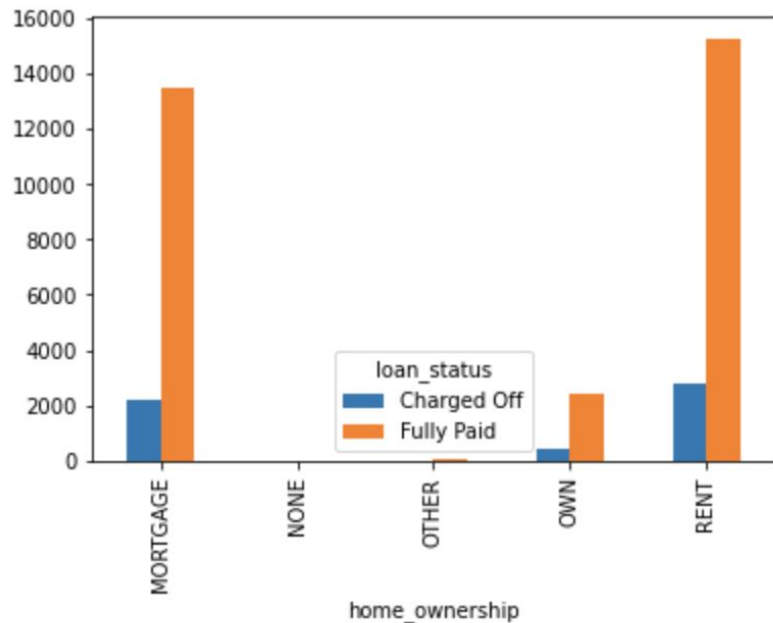
# Employment Length



## Conclusion:

- Employees with 10+ years have more number of people paying the loan fully, but the charged-off number is also high.

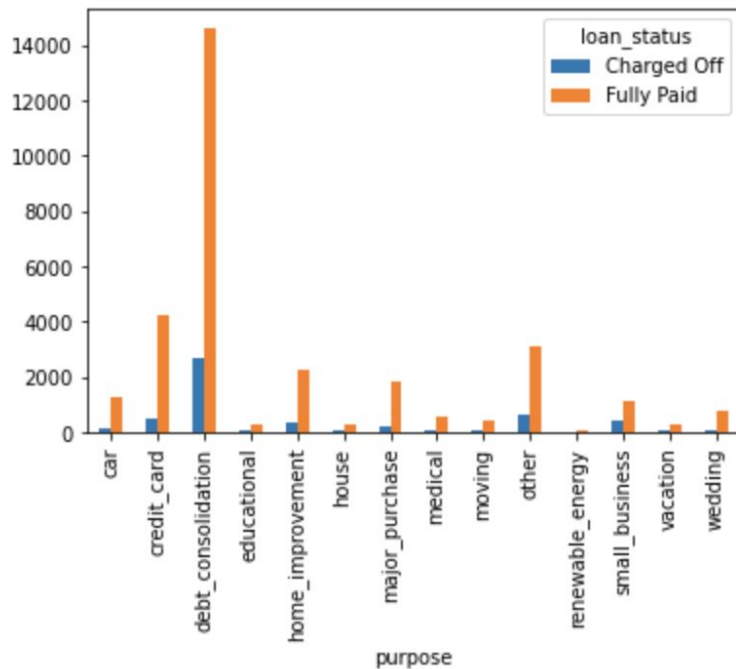
# Home Ownership



Conclusion:

Rented or Mortgaged home owners have higher charged-off, than applicants who owned a home.

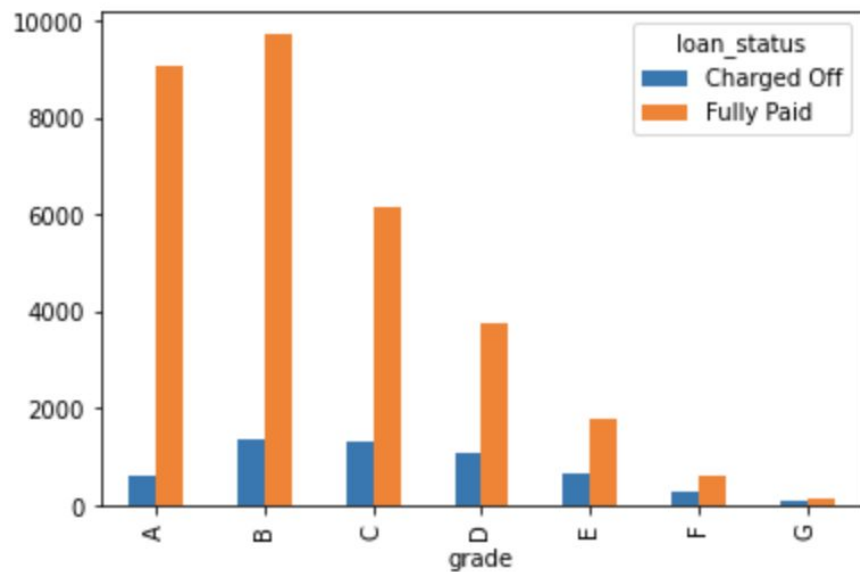
# Purpose



Conclusion:

Loans taken for clearing debt has higher charged-off cases.

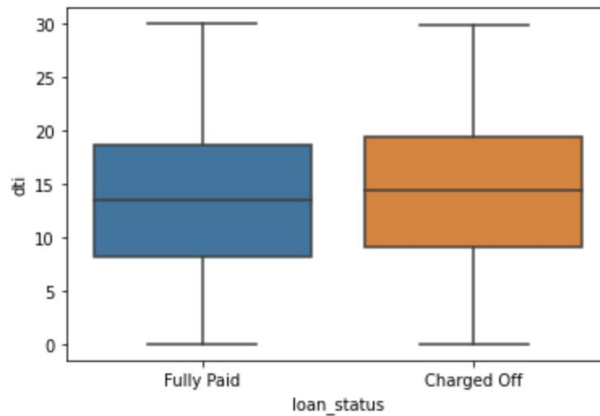
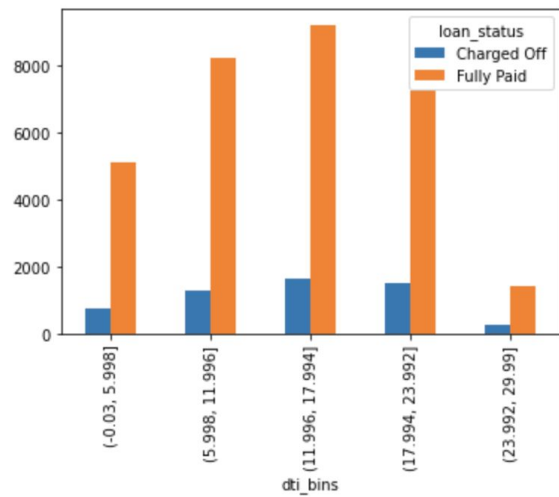
# Grades



Conclusion:

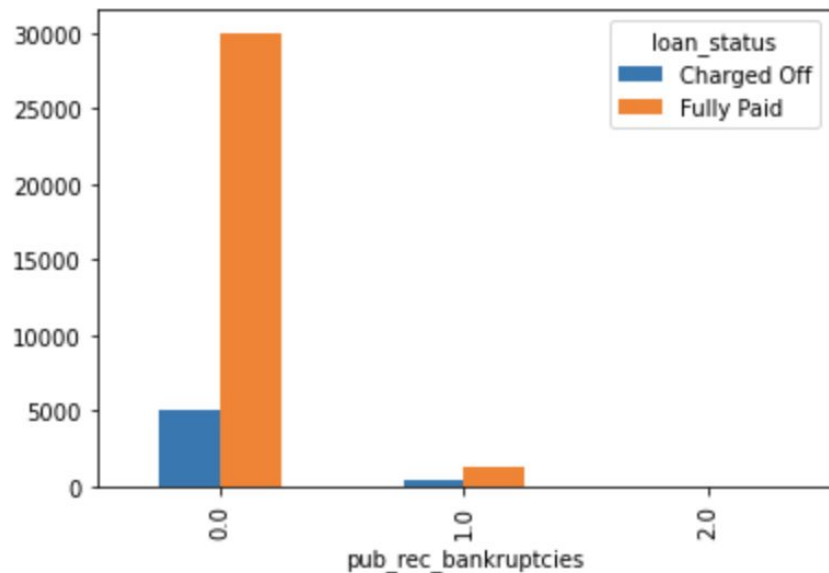
Grades B & C have higher charged-off status.

# DTI



High chances for charged-off when the dti is between 8-18.

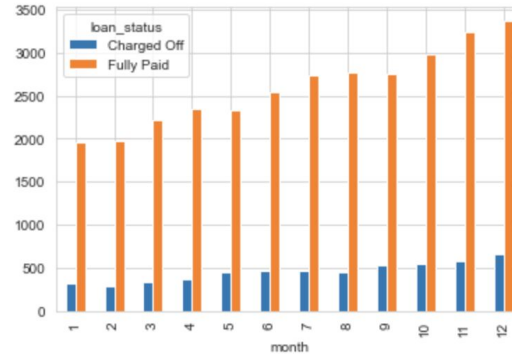
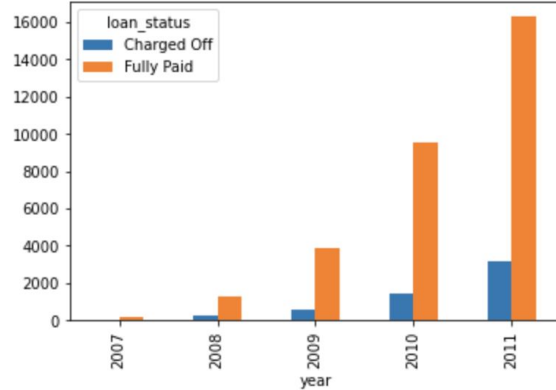
# Public Record of Bankruptcy



Even if public record of bankruptcy is 0 then too charged-off rate is high.



# Year and Month

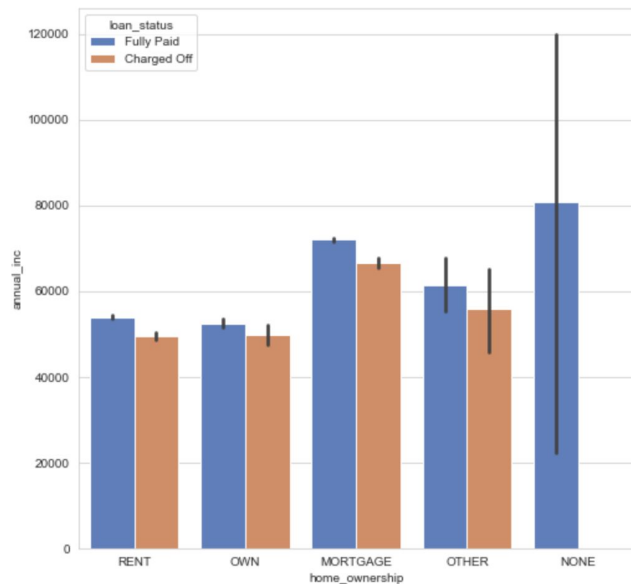


- Charged-off rate is increasing every year.
- Month of december, charged-off rate is higher.

# Bivariate Analysis

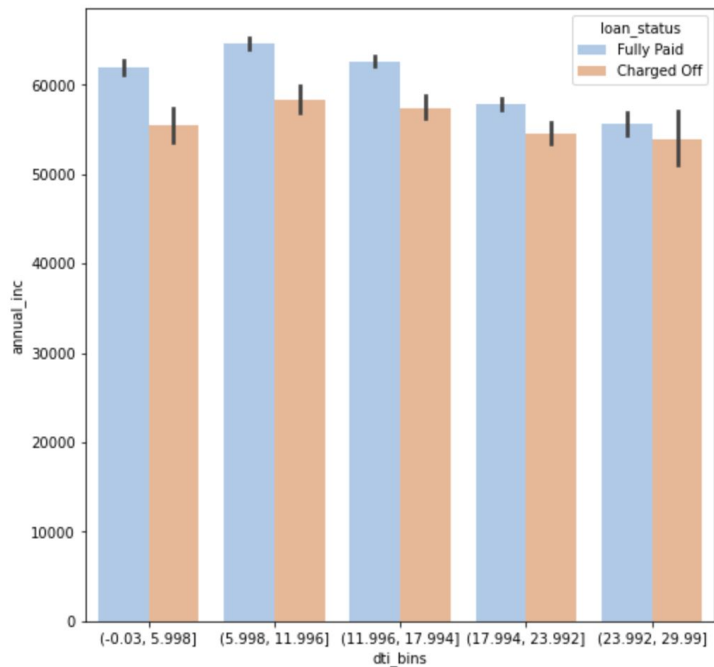
- Home Ownership vs Annual Income
- DTI vs Annual Income
- Interest Rate vs Annual Income
- Loan Amount vs Purpose
- Loan Amount vs Home Ownership

# Home Ownership vs Annual Income



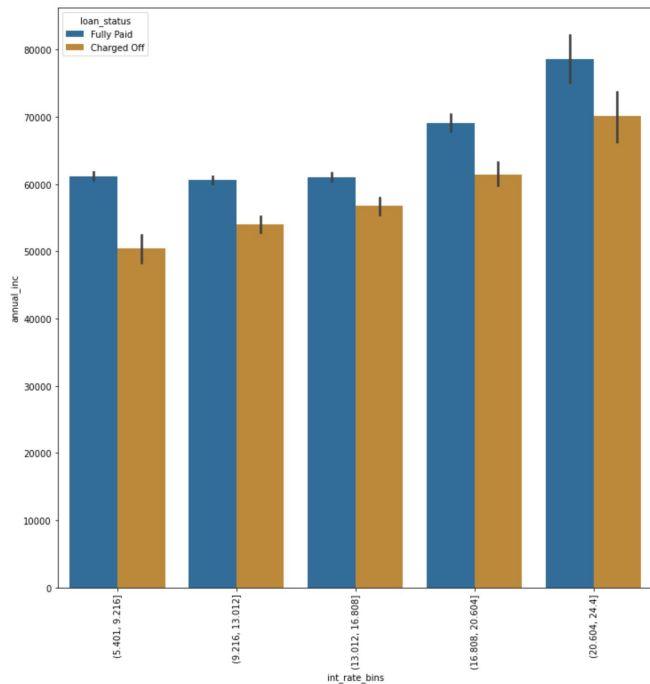
Higher annual income with home on mortgage will have more charged-off.

# DTI vs Annual Income



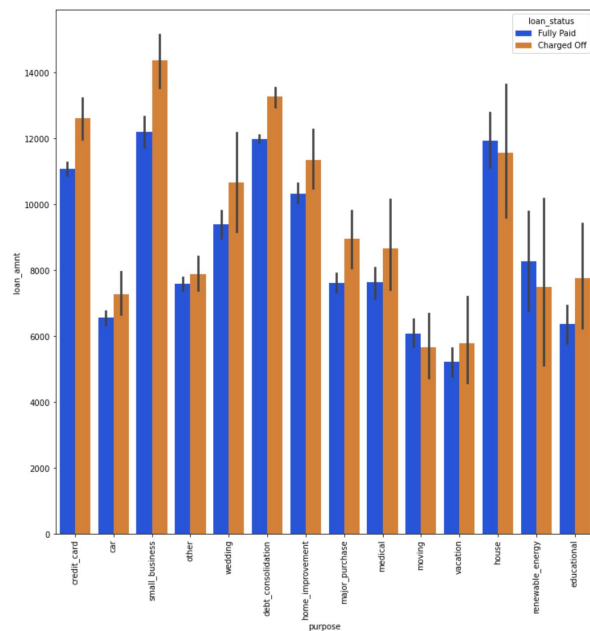
Higher income group with 6-12 dti has more charged-off.

# Interest Rate vs Annual Income



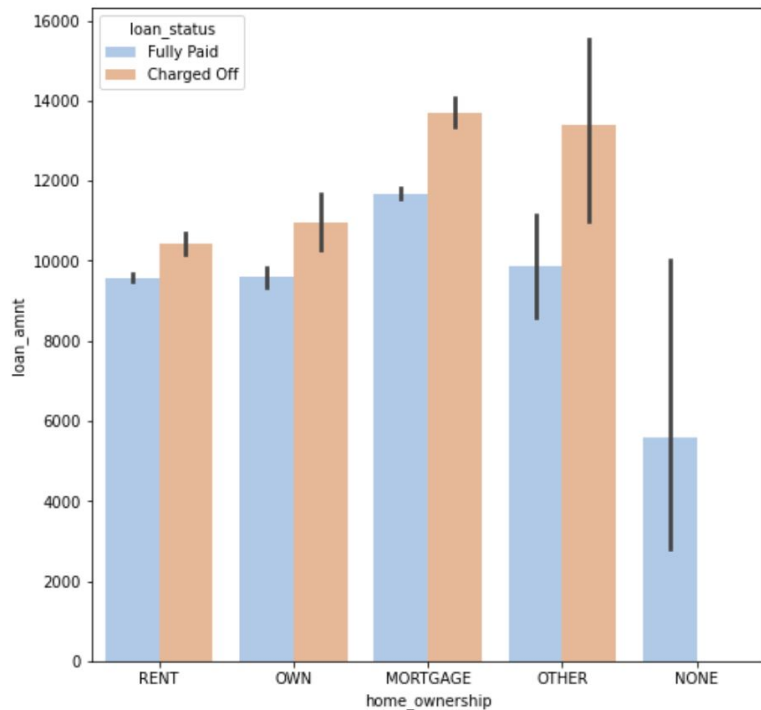
Loan taken on higher interest rate of 20-24% with annual income more than 70000 has more charged-off.

# Loan Amount vs Purpose



Loan amount taken for small business with applied loan of 14000 is likely to default.

# Loan Amount vs Home Ownership



People taking loan above 14000 with home on mortgage are likely to default

**Thank You**